

780 CMR 34.00 Existing Structures

780 CMR 3407.0 ENERGY **CONSERVATION** PROVISIONS ~~FOR EXISTING BUILDINGS~~

3407.1 General: Energy efficiency provisions for existing buildings shall comply with the International Energy Code (IEEC) 2006 with the 2006/2007 Supplement and with the Massachusetts amendments to the IEEC as provided in 780 CMR 13.00.

~~3407.1 General: 780 CMR 3407.0 establishes the energy provisions for existing buildings governed by 780 CMR 3404.0 or 780 CMR 3405.0.~~

~~3407.2 Applicability: Alterations to any building component affecting the energy conservation performance of an existing building shall comply with the applicable requirements of:~~

- ~~(a) 780 CMR, Table 3407 (COMPONENT VALUES FOR ALTERED ELEMENTS) and all applicable subsections of 780 CMR 13.0, or;~~
- ~~(b) 780 CMR 1304.2 for thermal envelope requirements and all other applicable requirements of 780 CMR 13.0, or;~~
- ~~(c) 780 CMR 1304.5 for thermal envelope requirements and all other applicable requirements of 780 CMR 13.0, or;~~
- ~~(d) 780 CMR 1309, or;~~
- ~~(e) 780 CMR Appendix J, as applicable.~~

~~3407.3 Exempt buildings: Refer to 780 CMR 1301.4 for thermally exempt buildings and 780 CMR 1308.1 for lighting exemptions.~~

~~3407.4 Certain specific requirements and/or compliance exceptions.~~

~~3407.4.1 Fenestration: Replacement windows for existing low rise residential buildings are required to have a maximum thermal transmittance of 0.44 and such windows must be NFRC listed/labeled.~~

~~Exception 1: Criteria for NFRC listing/labeling and maximum U-0.44 are not required if the existing window (s) are true divided light (i.e. single thickness multi pane sashes with structural muntin bars) and being replaced with "like kind" units. This Exception additionally requires that a storm window be installed over the replacement window. The storm window may be installed internally, externally, or integrated with the primary window.~~

~~Exception 2: Criteria for NFRC listing/labeling and maximum U-0.44 are not required for basement windows with a unit height up to 24 inches, whether or not the basement is a conditioned space.~~

~~3407.4.1.2 Reduction in wall fenestration.~~

~~When alterations to a wall assembly include only altering the fenestration component, the areas of fenestration may be decreased or replaced with an opaque wall element made to comply with the thermal transmittance value of the existing wall.~~

~~3407.4.2 Ordinary repairs: Ordinary repairs need not comply with the energy provisions.~~

Note that in the repair of broken windows, broken doors or broken skylights, like-kind replacement shall be allowed, but the complete replacement of windows, doors or skylights in an *existing building* shall require compliance with the applicable requirements of 780 CMR 3407.2. Any window replacement that includes new jambs or new jamb liners does not qualify as an “ordinary repair,” and such replacement is subject to the energy performance criteria of 780 CMR, 3407.2.

3407.4.3 Roofs: Compliance of the roof/ceiling assembly is not required unless the existing roofing material is stripped off the roof deck. However, if a structural analysis by a registered professional engineer shows that the roof will not support the additional live loads imposed by compliance of the roof/ceiling assembly, or, if such analysis shows that addition of the required amount of insulation will cause ponding of water, then compliance of the roof/ceiling assembly is not required.

3407.5 Alternative Designs: Alternative design methods may be used where it can be demonstrated through analysis by a licensed professional that the alternative will achieve a level of energy conservation equivalent to that required by 780 CMR 3407. A report on the energy conservation analysis shall be submitted to the building official with the application for the building permit.

TABLE 3407
COMPONENT VALUES FOR ALTERED ELEMENTS

| BUILDING COMPONENT | DESCRIPTION | THERMAL PROPERTIES | NOTES |
|--------------------|-------------|--------------------|-------|
|--------------------|-------------|--------------------|-------|

| | | | |
|---------------------------------|--|---|------------|
| Walls | All wall construction containing heated or mechanically cooled space | U-0.08 | 6,8 |
| Foundation Walls Including Band | Containing heated or mechanically cooled space | U-0.08 | 4 |
| | Containing unheated space | U-0.17 | |
| Roof/Ceiling Assembly | Wood plank and beam construction containing heated or mechanically cooled space | U-0.08 | 1 |
| Roof/Ceiling Assembly | Construction other than wood plank and beam containing heated or mechanically cooled space | 0.05 | |
| Windows and Skylights | All construction enclosing heated or mechanically cooled space | For windows, see Note 2. For skylights — no current restriction on “U” value | 2,5 6,7 |
| Floors | Floor sections over area exposed to outside air or unheated areas | U-0.08 | 3 |
| | Unheated slab on grade | R-5.50 | |
| | Heated slab on grade | R-7.75 | |
| Mechanical Equipment | Heating, cooling, sizing and efficiency | 780 CMR 1305.0 | 9 |
| Equipment Controls | Humidistats, thermostats & zoning | 780 CMR 1305.0, | 9 |
| Duct and Pipe Insulation and | Located in or on buildings | 780 CMR 1305.0 | |

| | | | |
|--------------------------------|----------|----------------|--|
| Construction | | | |
| Electrical Power Distribution. | | 780 CMR 1307.0 | |
| Lighting | Lighting | 780 CMR 1308.0 | |

Note 1. Wood plank and beam assemblies are constructions in which the finished interior surface is the underside of the roof deck.

Note 2. For existing low rise residential buildings, commencing January 1, 1999, the maximum allowed thermal transmittance of replacement windows, with or without a storm window, shall be 0.44 and such windows and window with storm window combinations will be NFRC listed labeled. For all other existing building types (commercial/high rise), window thermal transmittance requirements shall conform to the requirements of 780 CMR 13 generally and 780 CMR 1304.2 or 1304.5 or 1309, as applicable. Refer also to 780 CMR 3407.0 Exceptions 1 and 2.

Note 3. Insulation may be omitted from floors over unheated areas when foundation walls are provided with a U value of 0.17.

Note 4. The U value requirement of 0.17 for foundation walls may be omitted when floors over unheated spaces are provided with a U value of 0.08.

Note 5. Refer to 780 CMR Appendix J Table J4.3.2 for allowable air infiltration rates for residential doors and windows. Allowable rate for commercial doors is 11 cfm/lin. ft of operable sash crack.

Note 6. The first floor exterior envelope of business and mercantile use groups shall have an overall thermal transmittance value not greater than .65 in lieu of individual component values for walls and fenestration.

Note 7. When the glass area is increased, the glass and wall components which are altered shall comply with the component values in Table 3407. The extent of wall made to comply shall be equivalent to the decreased opaque wall area.

Note 8. When any alterations to the exterior wall component exposes the wall cavity or, when a finished system is added to a wall having no cavity, the wall must comply with the values in Table 3407.

Note 9. When mechanical system compliance is required on an existing system, only the portions of the system altered and any other portions which can reasonably be incorporated need comply.